

Applicants: Siepel et al.  
Serial No.: 09/936,621  
Filing Date: September 11, 2001  
Docket: 294-109 PCT/US  
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### REMARKS

Applicants have amended Claim 1. Claims 4-8 and 12 were previously cancelled. Accordingly, Claims 1-3, 9-11 and 13-15 are pending.

An unexecuted Declaration under 37 C.F.R. § 1.132 by Dr. Pieter L. Buwalda accompanies this Amendment. An executed copy will follow shortly.

### Amendment to the Specification

A typographical error appears on page 8, line 27, of the instant specification (Example 1). The amount of the starch mixture in line 27 should read 600 grams, instead of 400 grams. This typographical would be readily apparent to a skilled artisan. In particular, Example 1 calls for preparation of a mixture comprising 400 grams of native potato starch and 200 grams of pregelatinized starch. (See page 8, lines 22-25.) Thus, the amount of the resulting mixture is clearly 600 grams. Also, paragraph 6 of the accompanying Declaration under 37 C.F.R. § 1.132 discusses this typographical error.

### Rejection under 35 U.S.C. § 112 (first paragraph)

The Examiner has rejected Claim 1 under 35 U.S.C. § 112 (first paragraph) as failing to comply with the written description requirement. In particular, the Examiner states that "the limitation of 'thereby expanding said composition' is not supported by the original disclosure... There is not [*sic*] disclosure that the heating to above the glass transition temperature causes the expanding of the composition." (Office Action page 2, second paragraph.)

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There is a causal relationship between heating to above the glass transition temperature and the expansion of the composition. See paragraph 3 of the accompanying Declaration under 37 C.F.R. § 1.132.

Also, the present specification provides support for this causal relationship. In particular, see page 3, lines 14-21, of the specification. The relevant portion of this section is reproduced here.

The invention provides a method for obtaining an expanded foodstuff having improved expansion characteristics comprising preparing a composition... heating at least part of said composition to a temperature above its glass transition temperature, i.e. expanding said heated composition and letting it cool to below said glass transition temperature. (Emphasis added.)

In other words, the composition is prepared by heating, i.e. expanding. The abbreviation "i.e." stands for the Latin phrase "id est." The Latin phrase "id est" means "that is." The abbreviation "i.e." is used for clarification. Applicants have enclosed Exhibit A which shows the meaning of the abbreviation "i.e." In the context of the present specification, expansion accompanies heating.

However, in order to expedite prosecution, Claim 1 has been amended to replace the phrase "thereby expanding said composition" with the phrase "wherein said composition is expanded." Accordingly, Applicants request withdrawal of this rejection.

#### **Rejections under 35 U.S.C. § 103**

The Examiner has rejected Claims 1-3, 9-11 and 13-15 as being obvious over U.S. Patent No. 4,409,250 (van Hulle et al.) in view of Jeffcoat et al.

The Examiner states that van Hulle et al. disclose methods for preparing puffed snack products "from gelatinized doughs whose total amylopectin starch content ranges between

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about 30-95%." The Examiner states that "the method comprises the steps of mixing amylopectin starch together with other ingredients to form a dough, cooking the dough in an extruder to gelatinize the dough, shaping the dough into pieces, drying the pieces and puffing the pieces." (See Office Action page 2, last paragraph.) The Examiner concedes that "[v]an Hulle et al. do not disclose the amylopectin starch is non-cereal amylopectin starch..." (See Office Action page 3, first paragraph.) In an attempt to remedy this deficiency in van Hulle et al., the Examiner states that Jeffcoat et al. disclose cross-linked waxy potato starch.

Thus, the Examiner seems to consider the cooking of the dough in an extruder to achieve gelatinization disclosed by van Hulle et al. to be equivalent to the step of heating to above the glass transition temperature as required by the present invention. Applicants respectfully disagree with the Examiner's analysis, as discussed below.

As pointed out by the Examiner, in the procedure described by van Hulle et al., dough containing pregelatinized starch is cooked in an extruder under pressure. For example, cooking takes place at a pressure of 100 to 200 p.s.i.g. (See column 7, lines 21-24, of van Hulle et al.) Since the dough is in an extruder, the methods of van Hulle et al. do not allow for expansion of the dough while heating. (See paragraph 3 of the accompanying 1.132 Declaration.)

In contrast, the present invention provides a method of obtaining a heated-expanded dough. The method comprises heating a foodstuff which comprises a non-cereal amylopectin starch to a temperature above the glass transition temperature of the starch. The heating step of the present invention does not take place in an extruder thereby allowing the dough to expand. After expansion, the foodstuff is cooled to below the glass transition temperature.

Therefore, clearly the heating step of van Hulle et al. and the heating step of the present invention are not equivalent. That is, cooking in an extruder under pressure cannot result in, or for that matter be accompanied by, expansion. Thus, the process of gelatinization

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disclosed in van Hulle et al. is not equivalent to, nor suggestive of, heating starch to above the glass transition temperature.

Also, according to Dr. Buwalda, prior to heating, the dough of van Hulle et al. has an airy texture. He states that this texture is due to air bubbles being entrapped in the dough. In contrast, according to Dr. Buwalda, the initial dough composition of the present invention is non-aerated and glassy. Thus, unlike in the procedure of van Hulle et al., in the methods of the present invention, the expansion is not realized in the initial dough composition, but instead during the heating, i.e. during frying or baking. (See paragraph 3 of the 1.132 Declaration.)

Additionally, Jeffcoat et al. teach away from using amylopectin potato starch in the methods of the present invention.

The objective of the present invention is the expansion of a dough product. Jeffcoat et al. show that amylopectin potato starch derivatives are much higher in viscosity than waxy maize derivatives (see col. 2, lines 30-35 and 43-48, as well as Fig. 1 and Tables II and III). As stated by Dr. Buwalda, "It is generally understood to those skilled in the art that expansion is inversely related to viscosity (the higher the viscosity, the lower the expansion)." (See paragraph 4 of the accompanying 1.132 Declaration.)

Therefore, it would have been expected that use of an amylopectin potato starch as disclosed by Jeffcoat et al. in the procedure of van Hulle et al. would lead to reduced expansion when compared to the use waxy maize starch or regular potato starch. Accordingly, Jeffcoat et al. teach away from using amylopectin potato starch when a dough composition with greater expansion is desired.

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Moreover, even if the two teachings were to be combined, the present invention would not be obtained. As discussed above, the method of van Hulle et al. is different from the method of the present invention.

Furthermore, the degree of increase in expansion in the dough products using a non-cereal starch having an amylopectin content of at least 90 wt.% is surprising. That is, it is surprising that a non-cereal starch having such an amylopectin content would result in such a significant improvement in expansion behavior.

Examples of these surprising properties are demonstrated in the specification. For example, see page 10, line 20, to page 11, line 6, of the present specification. In Table 1, a comparison of two foodstuffs, Foodstuff 3 and Foodstuff 4, is presented. Foodstuff 4 consists of amylopectin potato starch. Foodstuff 3 includes amylopectin potato starch along with waxy maize starch. The substitution of the potato starch for the maize starch (a cereal starch) substantially increased the crispness and expansion of the final product. In particular, crispness was increased from a 5 to an 8. Expansion was increased from a 6 to an 8. Also, the volume of the foodstuff was increased from 520 ml to 650 ml. An explanation of these results is discussed in the accompanying 1.132 Declaration. )." (See paragraph 5 of the accompanying 1.132 Declaration.)

To recap, the methods of van Hulle et al. are different from the methods of the present invention. Thus, even if amylopectin potato starch were to be used in the methods of van Hull et al., the results of the present invention would not be achieved. Moreover, Jeffcoat et al. teach away from using amylopectin starch in methods in which the expansion of dough is desired. Furthermore, the degree of expansion of dough achieved by the methods of the present invention is surprising.

Independent Claim 9 of the present invention recites a heated-expanded foodstuff

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comprising a non-cereal amylopectin starch. As discussed above, neither van Hulle et al. nor Jeffcoat et al. disclose the preparation of compositions as described in the present application. Thus the cited prior art references cannot disclose the heat-expanded non-cereal amylopectin starch foodstuff products recited in Claim 9.

Accordingly, Applicants request that the obvious rejection be withdrawn.

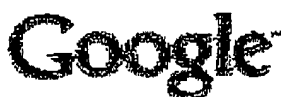
Applicants respectfully submit that the application, including Claims 1-3, 9-11 and 13-15, are now in proper form for allowance, which action is earnestly solicited. If resolution of any remaining issue is required prior to allowance of this application, it is respectfully requested that the Examiner contact Applicants' undersigned attorney at the telephone number provided below.

Respectfully submitted,



Susan A. Sipos  
Registration No.: 43,128  
Attorney for Applicants

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193217



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define: i.e.



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## Web

### Definitions of i.e on the Web:

"that is" (Latin: "id est"). N.B.: Avoid this. Use it only in parenthetical asides (i.e., asides like this one) and then only to clarify a point. Do not confuse with "e.g.". Also see "cf.".

[www.lpi.org/scripthelp/tips/wordlist.html](http://www.lpi.org/scripthelp/tips/wordlist.html)

Abbreviation for id est (latin) meaning "in other words."

[www.westp2net.org/hazwaste/app/glossary.html](http://www.westp2net.org/hazwaste/app/glossary.html)

[I-'E] abbreviation. that is, in other words (from the Latin id est) e.g. [E-'jE] abbreviation. for example (from the Latin exempli gratia).

[www-personal.umich.edu/~beckerib/definitions.html](http://www-personal.umich.edu/~beckerib/definitions.html)

id est = that is, it is

[herkules.oulu.fi/isbn9514259882/html/g37.html](http://herkules.oulu.fi/isbn9514259882/html/g37.html)

– that is, from the Latin id est.

[westlake.k12.oh.us/whs/english/StyleManual/Glossary.htm](http://westlake.k12.oh.us/whs/english/StyleManual/Glossary.htm)

define: i.e.



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## PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Siepel et al.

Examiner: Tran, Lien

Serial No.: 09/936,621

Group Art Unit: 1761

Filed: September 11, 2001

Docket: 294-109 PCT/US

For: INGREDIENTS FOR  
EXPANDED FOODS

Date: September 13, 2004

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the United States Postal Service as first class mail, postpaid  
in an envelope, addressed to: Commissioner for Patents,  
P.O. Box 1450, Alexandria, VA 22313-1450 on  
September 13, 2004*Signature: SUPPLEMENTAL RESPONSE TO OFFICE ACTION

Sir:

In response to the Office Action dated April 15, 2004, Applicants filed an Amendment and an unexecuted 37 C.F.R. §1.132 Declaration on August 16, 2004. Applicants submit herewith the executed §1.132 Declaration for entry in the above-identified application file. The previously filed unexecuted copy is identical with this executed copy.

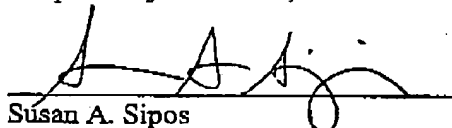
It is respectfully submitted that the present application is in all respects in condition for allowance which action is earnestly solicited. If for any reason the application, as amended, is



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not deemed in condition for allowance, the Examiner is respectfully requested to contact Applicants' attorney at the telephone number indicated below so that additional amendments may be entered as required.

Respectfully submitted,



Susan A. Sipos  
Registration No. 43,128  
Attorney for Applicants

HOFFMANN & BARON, LLP  
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Syosset, NY 11791  
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SAS/nr

194353

## PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Siepel et al.	Examiner:	Tran, Lien
Serial No.:	09/936,621	Group Art Unit:	1761
Filed:	September 11, 2001	Docket:	294-109 PCT/US
For:	INGREDIENTS FOR EXPANDED FOODS	Date:	August 16, 2004

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

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the United States Postal Service as first class mail, postpaid  
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P.O. Box 1450, Alexandria, VA 22313-1450 on  
August 16, 2004*

Signature: 

DECLARATION UNDER 37 C.F.R. § 1.132

The undersigned, Pieter L. Buwalda of Mondriaanstraat 32, Groningen, the Netherlands, herewith declares as follows:

1. I am a Food Starch Specialist at the Food Competence Center of the international co-operative AVEBE in Foxhol, The Netherlands, the world's largest manufacturers of potato starch derivatives. I took up this position on December 1 of 2001. Before that I was associated with the Chemistry Department of AVEBE for a period of almost twelve years where I performed research on various starch applications, the last five years mainly food oriented. My specialisation is Chemistry of Starch.

I hold a PhD degree in Organic Chemistry from the University of Groningen, the Netherlands, and have written a number of publications and am a co-inventor of various patents relating to Starch Chemistry. In 1997, for instance, I acted as an author on Granular and Molecular Structure of Starch, The 3<sup>rd</sup> CAFST International Symposium, page 109. A list of publications is attached to this declaration.

2. I am co-inventor of the patent application as identified above. The invention of this application is based on the insight that a foodstuff that is prepared with the use of an amylopectin root/tuber starch in a process involving heating to a temperature above the glass transition temperature of the starch exhibits unexpectedly high expansion as compared to a similar foodstuff prepared from regular (i.e. amylose containing) potato starch or amylopectin maize starch (waxy maize). A foodstuff prepared with such a starch moreover has an advantageous texture.

3. Based on experimental evidence, the method disclosed by van Hulle et al. does not result in a foodstuff with the beneficial properties and characteristics of the foodstuffs prepared by a method of the present invention. In particular, the desired expansion properties will not be obtained.

In the procedure described by van Hulle et al., cold water soluble (hereinafter pregelatinized) starch is used to modify the rheology of the product in water rich dough. The dough is cooked in an extruder under pressure. The dough is then dried. The air bubbles entrapped in this system give the airy texture. This can be compared to the baking of a cake or aerated cookies in traditional baking applications. In this prior art procedure, the pregelatinized starch merely serves as a rheology modifier of the dough.

In contrast to the van Hulle et al. procedure, in accordance with the present invention, both non-pregelatinized and pregelatinized, non-cereal starch having an amylopectin content of at least 90 wt.% may be used to enhance the airy texture. Before frying or baking, the initial dough composition is usually non-aerated and glassy, similar to a pasta noodle. Starting from a low moisture system, the dough composition is then heated above the glass transition temperature and exposed to vigorous blowing of water.

Thus, in contrast to the procedure of van Hulle et al., in a process of the present invention, expansion is not realized in the initial dough composition; instead expansion takes place during heating, i.e. during frying or baking.

4. Furthermore the present invention requires expansion of a product using a non-cereal amylopectin starch, which results in a higher expansion than when waxy maize is used. Jeffcoat et al. show that amylopectin potato starch derivatives are much higher in viscosity than waxy maize derivatives (see col. 2, lines 30-35 and 43-48, as well as Fig. 1 and Tables II and III). It is generally understood to those skilled in the art that expansion is inversely related to viscosity (the higher the viscosity, the lower the expansion).

Therefore, it would be expected that application of an amylopectin potato starch as disclosed by Jeffcoat et al. in the procedure of van Hulle et al. would lead to reduced expansion when compared to waxy maize starch or regular potato starch.

5. The Examples of the present application, which were carried out in 1998 under my supervision, reflect the superior expansion characteristics of a foodstuff prepared in a process of the invention in comparison with a foodstuff prepared using regular potato starch or waxy maize starch (see Tables 1 and 2). In particular, Table 1 shows that the product prepared in Example 1, using native regular potato and pregelatinized waxy maize starch, shows an expansion rated a 6, whereas the product prepared in Example 4, using native amylopectin potato starch and a pregelatinized amylopectin potato starch, shows an expansion rated an 8.

The results of more detailed expansion measurements are shown in Table 2. These measurements were performed by weighing the amount necessary to fill a 2 liter measuring cylinder with baked snacks prepared as described in Examples 5-11. The results are expressed as the volume occupied by 200 grams of snacks. As can be seen in Table 2, 200 grams of the snacks prepared in Examples 5 and 8-9<sup>1</sup>, prepared using amylopectin potato starch, all occupy 2100 milliliters or more; whereas 200 grams of the snacks prepared in Examples 6 and 7, prepared using waxy maize starch and regular, amylose containing potato starch, respectively, occupy only 1880 and 1610 milliliters, respectively. In the worst case (i.e. comparing the results for waxy maize of Example 6 with those for amylopectin potato starch in Example 9), this still is an increase in expansion of more than 15%.

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<sup>1</sup> Examples 10 and 11 should not be taken into account in this comparison because different recipes were used for preparing the snacks in these Examples. In particular, in Example 10 the starch dosage was increased by 50% and in Example 11 the water dosage was increased by 40%.

6. There is a typographical error on page 8, lines 22-27, of the instant specification (Example 1). The amount of the starch mixture in line 27 should read 600 grams (400 grams of native and 200 grams of pregelatinized starch) instead of 400 grams.

7. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true. Further that these statements were made with the knowledge that willfully false statements and the like so made are punishable by fine or imprisonment or both under Section 1001 of Title 18 of the United States Code, and that such willfully false statements may jeopardize the validity of the application of any patent issued thereon.

Dated: 30/8/2004

Respectfully submitted,

  
Pieter L. Buwalda

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Serial No.: 09/936,621  
Filing Date: September 11, 2001  
Group Art Unit: 1761  
Examiner: Lien Tran  
Docket: 294-109 PCT/US

Certificate of Mailing Dated: October 15, 2004

The U.S. Patent and Trademark Office date stamp will  
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Applicants: Siepel et al.  
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PATENT

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant(s)	Siepel et al.	Examiner:	Lien Tran
Serial No.:	09/936,621	Group Art Unit:	1761
Confirmation No.:	7146	Docket:	294-109 PCT/US
Filed:	September 11, 2001	Dated:	October 15, 2004
For:	Ingredients for Expanded Foods		

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**NOTICE OF APPEAL FROM THE PRIMARY EXAMINER TO THE BOARD  
OF PATENT APPEALS AND INTERFERENCES**

Applicants hereby appeal to the Board from the decision of the Primary Examiner,  
mailed April 15, 2004, finally rejecting Claims 1-3, 9-11 and 13-15.

The item(s) checked below are appropriate:

**1. STATUS OF APPLICANT**

This application is on behalf of

- ☒ other than a small entity.  
☐ small entity.

A verified statement claiming small entity status

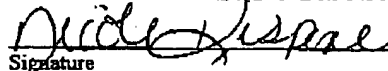
- ☐ is attached.  
☐ was already filed on \_\_\_\_\_.

**CERTIFICATE OF MAILING/TRANSMISSION (37 CFR 1.8a)**

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Date: October 15, 2004

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Patent and Trademark Office

(Notice of Appeal from the Primary Examiner to Board Page 1 of 3)

**2. FEE FOR FILING NOTICE OF APPEAL**

Pursuant to 37 CFR 1.17(e), the fee for filing the Notice of Appeal is:

☐ small entity \$170.00  
☒ other than small entity \$340.00

Notice of Appeal fee due \$340.00

**3. EXTENSION OF TERM**

The proceedings herein are for a patent application and the provisions of 37 CFR 1.136 apply.

(complete (A) or (B), as applicable)

(A) ☒ Applicants petition for an extension of time under 37 CFR 1.136 for the total number of months checked below (fees: 37 CFR 1.17(a)-(d)):

	Extension (months)	Fee for Other than Small Entity	Fee for Small Entity
<input type="checkbox"/>	one month	\$ 110.00	\$ 55.00
<input type="checkbox"/>	two months	\$ 430.00	\$215.00
<input checked="" type="checkbox"/>	three months	\$ 980.00	\$490.00
<input type="checkbox"/>	four months	\$1,530.00	\$765.00

Fee due for indicated extension \$980.00

If an additional extension of time is required, please consider this a petition therefor.

(check and complete the next item, if applicable)

☒ An extension for 1 months has already been secured. The fee paid therefor of \$110.00 is deducted from the total fee due for the total months of extension now requested.

Extension fee due with this request = \$870.00

(B) ☐ Applicant believes that no extension of term is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition and fee for extension of time.

**4. TOTAL FEE DUE**

The total fee due is:

Notice of Appeal fee \$ 340.00  
Extension fee (if any) \$ 870.00

**TOTAL FEE DUE** \$ 1210.00

(Notice of Appeal from the Primary Examiner to Board Page 2 of 3)



## 5. FEE PAYMENT

☒ Attached is a check in the sum of \$1210.00

☐ Charge Account No. \_\_\_\_\_ the sum of \$

A duplicate of this transmittal is attached.

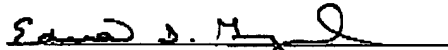
## 6. FEE DEFICIENCY

☒ If any additional extension and/or fee is required or any overpayment has been made, please charge our Deposit Account No. 08-2461 or credit our Deposit Account for such sum.

AND/OR

☒ If any additional fee for claims is required or any overpayment has been made, please charge our Deposit Account No. 08-2461 or credit our Deposit Account for such sum.

Respectfully submitted,

  
Edna I. Gergel  
Agent for Applicants  
Registration No. 50,819

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